

REMARKS

I. Status Summary

Claims 1-4, 6-14, 36, 38, 39, and 41-48 are now pending in the subject U.S. patent application and have been examined by the United States Patent and Trademark Office (hereinafter "the Patent Office"). Claims 1-4, 6-14, 36, 38, 39, and 41-48 presently stand rejected.

Claims 1, 10, 36, 41, and 46 have been amended. Support for the amendments can be found throughout the specification as filed and as indicated in the remarks below. Accordingly, no new matter has been added.

New claim 49 is added by the present amendment.

Reconsideration of the application as amended and based on the remarks set forth herein below is respectfully requested.

II. Claim Amendments

Claims 1, 10, 36, 41, and 46 have been amended herein.

More particularly, claims 1 and 41 have been amended to recite a "composition comprising a membrane having bound carboxy-blocked phosphoprotein." Support for "carboxy-blocked" can be found in the instant specification at page 36, line 30. Additional support can be found in the instant specification at page 11, lines 10-14; at page 25, line 32 to page 26, line 18; and at page 34, line 10 to page 36, line 24.

Claim 10 has been amended to recite a "composition comprising a membrane having bound carboxy-blocked phosphoprotein" and to recite "contacting a membrane having bound carboxy-blocked phosphoprotein with the PPDR." Support for the amendment can be found in the instant specification at page 11, lines 10-14; at page 25, line 32 to page 26, line 18; at page 34, line 10 to page 36, line 24; and at page 36, line 30.

Claim 36 has been amended to recite "a carboxy-blocking reagent." Support for the amendment can be found in the instant application at page 11, lines 10-14; at page 25, line 32 to page 26, line 18; at page 34, line 10 to page 36, line 24; and at page 36, line 30. Additional support with regard to adding a reagent to the kit can be found in the instant specification at page 23, lines 7-9.

Claim 46 has been amended to recite "a carboxy-blocked phosphoprotein bound to the membrane." Support for the amendment can be found in the instant application as filed at page 11, lines 10-14; at page 25, line 32 to page 26, line 18; at page 34, line 10 to page 36, line 24; and at page 36, line 30.

No new matter has been added. Applicant respectfully believes that claims 1, 10, 36, 41, and 46, and their respective dependent claims are in condition for allowance and respectfully request a Notice of Allowance to that effect.

III. New Claim

New claim 49 has been added. New claim 49 recites the method of claim 10, wherein the membrane having bound carboxy-blocked phosphoprotein is prepared by contacting a membrane having bound phosphoprotein with one of the group consisting of methanolic HCl, a carbodiimide, and Woodward's Reagent "K". Support for new claim 49 can be found in the instant specification as filed at page 26, lines 16-18.

Applicant respectfully believes that new claim 49 is free of the cited art and is in condition for allowance. A Notice of Allowance to that effect is respectfully requested.

IV. Response to Rejections under 35 U.S.C. § 112, First Paragraph

Claims 36, 38-39, and 47 have been rejected under 35 U.S.C. § 112, first paragraph, upon the contention that the claim element of a 'membrane' constitutes new matter. After careful consideration of the rejection and of the Patent Office's comments, applicant respectfully traverse the rejection and offer the following remarks.

Initially, applicant respectfully submits that, as noted in the Amendment filed in the subject application on August 7, 2009, support for the amendment can be found throughout the specification and in the original claims as filed. See particularly page 9, lines 4-7; page 13, lines 18-21; and page 24, line 30 to page 25, line 6.

The instant specification at page 24, line 30 to page 25, line 6 describes how proteins that are present in cell lysate can be separated and transferred to a PVDF membrane and how a solution comprising a PPDR can be contacted such that the reagent binds to phosphoamino acid present in a protein immobilized on the membrane.

Figure 2 and page 13, lines 18-21, illustrate and describe using a PPDR to probe for phosphoproteins on a membrane, such as PVDF.

As further described in the instant specification at page 24, lines 21-29, the contacting of a reagent comprising a PPDR can take place when the phosphoprotein is immobilized on a solid support, such as nitrocellulose or PVDF. The instant specification at page 23, lines 6-8 describes how the kit comprising the PPDR and instructions for use can further include secondary reagents for use with the PPDR. In addition, the instant specification at page 9, lines 4-7, describes how features of one embodiment of the presently disclosed subject matter can be applied to other embodiments. Accordingly, applicant respectfully submits that one of ordinary skill in the art would understand that the kit could include a membrane for protein immobilization prior to contacting with the PPDR.

As such, applicant respectfully submits that the membrane of claim 36 does not constitute new matter. Applicant believes that claims 38, 39, and 47 are included in the rejection for depending from claim 36. Therefore, applicant respectfully submits that claims 38, 39 and 47 are also free of new matter.

Applicant respectfully request that the rejection of claims 36, 38-39, and 47 under 35 U.S.C. § 112, first paragraph, with regard to the written description requirement be withdrawn and further ask that claims 36, 38-39, and 47 be allowed at this time.

V. Responses to Rejections under 35 U.S.C. § 102 over Agnew

Claims 1-2, 4, 6-10, 36, 38-39, and 41-45 have been rejected under 35 U.S.C. § 102 (e) as allegedly being anticipated by U.S. Patent No. 7,102,005 issued to Agnew *et al.*, hereinafter "Agnew." The Patent Office contends that Agnew discloses a binding solution comprising a chemical moiety, a linker, and a chelating moiety.

The Patent Office further contends that Agnew discloses a binding solution, an IDA chelator, Ga^{3+} and Fe^{3+} metal ions, chemical moieties labeled with biotin, methods of making and using the phosphate binding compound, and a kit.

After careful consideration of the rejections and the Patent Office's bases therefor, applicant respectfully traverses the rejections and submits the following remarks.

Initially, applicant respectfully submits that, as described hereinabove, each of claims 1, 10, and 41 have been amended to recite "carboxy-blocked phosphoprotein." Claim 36 has been amended to recite a "carboxy-blocking reagent." Each of claims 2, 4, 6-9, 38-39, and 42-45 depend from one of claims 1, 36, or 41 and, therefore, include each and every element of one of claims 1, 36, or 41.

Accordingly, applicant respectfully submits that the presently claimed subject matter relates to compositions and kits wherein phosphoproteins are carboxy-blocked prior to detection with a phosphoprotein detection reagent (PPDR). As described in the instant specification, carboxy-blocking can prevent reaction of carboxyl groups in certain amino acid side chains with PPDRs. Thus, carboxy-blocking a phosphoprotein can increase the efficiency of detection of the phosphoprotein. See Instant Specification, page 36, lines 6-20.

Applicant respectfully submits that Agnew does not teach compositions or kits related to carboxy-blocked phosphoprotein.

Accordingly, applicant respectfully requests that the rejection of claims 1-2, 4, 6-10, 36, 38-39, and 41-45 under 35 U.S.C. § 102 over Agnew be withdrawn and further ask that claims 1-2, 4, 6-10, 36, 38-39, and 41-45 be allowed at this time.

VI. Responses to Rejections under 35 U.S.C. § 103 over Agnew

Claims 46-48 are alleged to be obvious over Agnew. In addition to the contentions above, the Patent Office contends that Agnew teaches a binding solution with a pH of about 3 to 6. The Patent Office contends that it is obvious to move from the pH range in Agnew to a range which overlaps that, such as a pH ranging from about 5.0 to about 7.0 as in claim 46.

After careful consideration of the rejections and the Patent Office's bases therefor, applicant respectfully traverses the rejections and submits the following remarks.

Initially, applicant respectfully submit that, as described hereinabove, each of claims 1 (from which claim 48 depends), 36 (from which claim 47 depends), and 46 have been amended to recite "carboxy-blocked phosphoprotein" or "carboxy-blocking reagent."

Accordingly, applicant respectfully submits that the presently claimed subject matter relates to compositions and kits wherein phosphoproteins are carboxy-blocked prior to detection with a phosphoprotein detection reagent (PPDR). Applicant respectfully submits that Agnew does not teach or suggest compositions or kits related to carboxy-blocked phosphoprotein.

Accordingly, applicant respectfully requests that the rejection of claims 46-48 under 35 U.S.C. § 103 over Agnew be withdrawn and further ask that claims 46-48 be allowed at this time.

VII. Response to Rejections under 35 U.S.C. § 103 over Agnew, Posewitz, and Tempst

Claims 3 and 41-45 have also been rejected for allegedly being obvious over Agnew in view of Posewitz and Tempst, *Anal. Chem.* 71: 2883-2892 (1999), hereinafter "Posewitz." The Patent Office admits that Agnew does not teach that the chelator is nitriloacetic acid (NTA). However, Posewitz is alleged to teach the quadridentate metal binding ligand NTA. The Patent Office asserts that it would be obvious to combine the teachings of Agnew and Posewitz to arrive at the presently claimed subject matter of claims 3 and 41-45.

After careful consideration of the rejections and the Patent Office's bases therefor, applicant respectfully traverses the rejections and submit the following remarks.

Initially, applicant respectfully submits that, as described hereinabove, each of claims 1 (from which claim 3 depends) and 41 (from which claims 42-45 depend) have been amended to recite "carboxy-blocked phosphoprotein."

Accordingly, applicant respectfully submits that the presently claimed subject matter relates to compositions wherein phosphoproteins are carboxy-blocked prior to detection with a phosphoprotein detection reagent (PPDR). Applicant respectfully submits that Agnew and Posewitz, alone or in combination, do not teach or suggest compositions related to carboxy-blocked phosphoprotein.

Accordingly, applicant respectfully requests that the rejection of claims 3 and 41-45 under 35 U.S.C. § 103(a) over Agnew and Posewitz be withdrawn and further ask that claims 3 and 41-45 be allowed at this time.

VIII. Response to Rejections under 35 U.S.C. § 103(a) over Ehteshami Dissertation, Ehteshami et al., and Agnew

Claims 1-2, 4, 6-14, 36, 38-39, and 41-48 have also been rejected as being obvious over Ehteshami, "Synthesis and Characterization of Bioaffinity Interactive Heterobifunctional Polyethylene Glycols," Ph.D. dissertation, University of Arizona (1996), hereinafter "Ehteshami Dissertation," as evidenced by Ehteshami *et al.*, *Molecular Recognition* 9: 733-737 (1996), hereinafter "Ehteshami et al.," in view of Agnew.

The Patent Office asserts that Ehteshami Dissertation teaches a composition comprising a polydentate chelator, a linker and a detectable moiety. The Patent Office concedes that Ehteshami Dissertation does not teach a kit or that the conjugate is soluble in an aqueous solution but the Patent Office alleges that the aqueous solution is inherent as evidenced by Ehteshami et al. The Patent Office further concedes that Ehteshami et al. does not teach a membrane, that the metal ion is Fe^{3+} , Al^{3+} , Yb^{3+} or Ga^{3+} , or that the binding solution has a pH range of 5. to 7.0. Agnew is alleged to teach these missing elements.

After careful consideration of the rejections and the Patent Office's bases therefor, applicant respectfully traverses the rejections and submit the following remarks.

Initially, applicant respectfully submits that, as described hereinabove, each of claims 1 (from which claims 2, 4, 6-9, and 48 depend), 10 (from which claims 11-14 depend), 36 (from which claims 38, 39, and 47 depend), 41 (from which claims 42-45 depend), and 46 have been amended to recite "carboxy-blocked phosphoprotein" or "carboxy-blocking reagent."

Accordingly, applicant respectfully submits that the presently claimed subject matter relates to compositions wherein phosphoproteins are carboxy-blocked prior to detection with a phosphoprotein detection reagent (PPDR). Applicant respectfully

submit that Agnew, Ehteshami Dissertation, or Ehteshami et al. alone or in combination, do not teach or suggest compositions or kits related to carboxy-blocked phosphoprotein.

Accordingly, applicant respectfully requests that the rejection of claims 1-2, 4, 6-14, 36, 38-39, and 41-48 under 35 U.S.C. § 103(a) over Ehteshami Dissertation, as evidenced by Ehteshami et al. in view of Agnew be withdrawn and further ask that claims 1-2, 4, 6-14, 36, 38-39, and 41-48 be allowed at this time.

IX. Response to Rejections under 35 U.S.C. § 103 over
Ehteshami Dissertation, Ehteshami et al., Agnew, and Posewitz

Lastly, claims 3 and 41-45 have been rejected as being obvious over Ehteshami Dissertation as evidenced by Ehteshami et al. in view of Agnew and further in view of Posewitz. The Patent Office repeats the arguments made above to allege that the presently claimed subject matter is obvious in view of the cited references.

After careful consideration of the rejections and the Patent Office's bases therefor, applicant respectfully traverses the rejections and submits the following remarks.

Initially, applicant respectfully submits that, as described hereinabove, each of claims 1 (from which claim 3 depends) and 41 (from which claims 42-45 depend) have been amended to recite "carboxy-blocked phosphoprotein."

Accordingly, applicant respectfully submits that the presently claimed subject matter relates to compositions wherein phosphoproteins are carboxy-blocked prior to detection with a phosphoprotein detection reagent (PPDR). Applicant respectfully submits that Agnew, Ehteshami Dissertation, Ehteshami et al. or Posewitz, alone or in combination, do not teach or suggest, compositions related to carboxy-blocked phosphoprotein.

Accordingly, applicant respectfully requests that the rejection of claims 3 and 41-45 under 35 U.S.C. § 103(a) over Ehteshami Dissertation, as evidenced by Ehteshami et al. in view of Agnew and further in view of Posewitz be withdrawn and further ask that claims 3 and 41-45 be allowed at this time.

CONCLUSIONS

In accordance with the amendments to the claims and the remarks presented hereinabove, applicant respectfully submits that claims 1-4, 6-14, 36, 38, 39, 41-49 are in condition for allowance, and respectfully solicits a Notice of Allowance to that effect.

Should there be any minor issues outstanding in this matter, Examiner Fetterolf is respectfully requested to telephone the undersigned attorney. Early passage of the subject application to issue is earnestly solicited.

DEPOSIT ACCOUNT

The Commissioner is hereby authorized to charge any deficiency in payment or credit any overpayment associated with the filing of this correspondence to Deposit Account Number 50-0426.

Respectfully submitted,

JENKINS, WILSON, TAYLOR & HUNT, P.A.

Date: March 15, 2010

By: 

Arles A. Taylor, Jr.
Registration No. 39,395
Customer No. 25297
(919) 493-8000

421/73/2 AAT/MCG/cam